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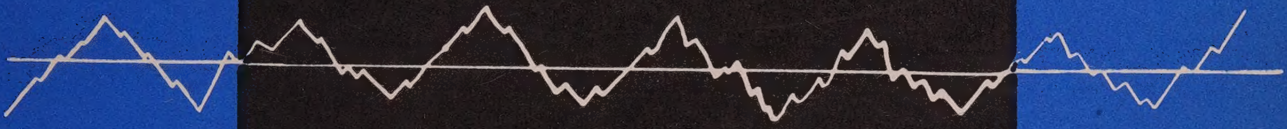

February 1956

FOUNDATION FOR THE STUDY OF CYCLES
New York, New York

Mr. H. A. Musham
741 No. Rush St.
Chicago, Ill.

CONTENTS

Page
DIRECTOR'S LETTER 31

RESEARCH

The 1956 Postscript to *Cycles-The Science of Prediction*. . . 33

LETTERS

Long Term Cycles in Human Emotion 45

THE MODIFIED GEISINGER INDICATOR OF INDUSTRIAL PRODUCTION 50

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cycles

The official Bulletin of
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Study of Cycles

VOLUME VII NUMBER 2 FEBRUARY 1956

The Director's Letter

Dear Member:

I find myself wondering how you like the conversational form in which I am writing the Postscript. How *do* you like it? Please tell me.

I am trying it because so many people have found the reports hard to read. Intelligent people. Nevertheless the material has proved hard for them.

I don't think it is the fault of my English. I constantly check my writing for readability against the standards set up by Rudolph Flesch in his book *The Art of Plain Talk*. In the main, my English rates about the same for difficulty as *Reader's Digest*. It *should* be easy reading for anyone who has passed eighth grade. The trouble isn't with the English.

I think the trouble is with the *concepts*. They are new to many people. It's new concepts—and not difficult, involved English—which are at the root of the trouble.

Also the stuff has a lot of figures in it, and figures are dry for most people. In other words, a second basic trouble is that much of what I write is *uninteresting*.

On the other hand people seem to like The Director's Letter. Could this fact be the answer? Could I make the whole report a sort of extended Director's Letter? Could I write it just as I would talk it if you and I had a chance to sit down and talk face to face?

Of course it's the easiest thing in the world to do. The whole question is, would you like it? I decided to try. That's the best way to find out.

After some thought I decided to use dialogue. You remember Alice in Wonderland: "....what is the use of a book,'' thought Alice 'without pictures or conversations?"

The conversations are largely imaginary. But you will be interested to know that Dr. Robert Steele is a real person. He is a friend of mine who lives nearby. At least he *was* a friend. He has not yet seen the January report. He does not know that his name is being used. Maybe, when he finds out, he won't be a friend any longer!

When I actually started to write the new way it went so easily I could hardly stop. I filled up all available space in the January report in no time. I had material left over for the February report. The result is that for this report you are getting a 24-page book instead of the 8 pages I told you to expect! Before I start on the trip I mentioned last month I hope to have a good part of the March report written as well!

The important thing is, do you like it?

The Art of Plain Talk

At this point let me introduce a plug for Rudolf Flesch's book *The Art of Plain Talk*, and a companion book, *The Art of Readable Writing*. Even though you write no more than business letters you should have these books. Just a few simple rules and you can double the readability—and the effectiveness—of what you write.

I've owned several copies of *The Art of Plain Talk*. I give them away, or I lend them—which is another way of saying the same thing! *The Art of Readable Writing* has come to my attention only recently.

If I were talking to you personally I'd offer to take the books off your hands if you were not pleased, but with nearly 5,800 members, I'd better not be so rash. However, I do endorse them. Start by getting *The Art of Plain Talk*.

Horse Trading

My father was quite a horse trader. I remember he once traded horses with old Phillip Dillwig. Phillip was a pretty good horse trader himself. Phillip was good at trading anything. Phillip once offered to give a friend of mine named Arthur Walley twelve hens for twelve roosters, sight unseen. When the bargain was struck Phillip produced twelve little bantams. But they were hens, so what could Arthur do? That will give you an idea of how trading was done in those days. There was no dishonesty—but if your horse had the heaves or the bots or laminitis or glanders you did not go out of your way to tell the other fellow. It was something like modern advertising.

Well, to get back to the horse trade I started to tell you about. I don't remember what kind of an old nag Phillip passed off on Dad, but I do remember that the nag Dad passed off on Phillip curled up his toes and died on a bridge a quarter of a mile from our barn as Phillip was leading him home!

A Secret

Now in horse trading it is helpful to know how old the horse is. Some people look at the teeth, but you can't always tell this way. I'll give you a sure fire method. It's a secret known to very few. I once revealed it to a friend of mine from Kentucky. He had never heard of the method. He could not find anyone in Kentucky who had either. This amazed him. He thought Kentucky folks knew everything about horses.

Well, here's the secret: For each five years of age a bump will grow on the left side of the horse's neck. The bumps are about 1" or 1 1/4" in diameter; about 1/16" thick. The first one is somewhat back of the ear. It matures when the horse is five. Then the second one starts about three inches down toward the shoulder. You can't *see* them. You have to *feel* them. A twelve year old horse will have two bumps and nearly half of another one.

I once went through a whole stable belonging to one of our members who lives near Wilmington, Delaware. He said I was right in every instance but one. As for that one, he did not know the age himself, so I may have been right there too.

Like Cycles

These bumps are like cycles. (You knew I'd lug cycles in some way, didn't you?) They are like cycles (1) because they are more or less evenly spaced; (2) because most people don't know about them; (3) because they give you (in the present state of our knowledge) only approximate information; (4) because they give you only partial information.

However, the information they give, like the information given by a knowledge of cycles, is valuable. It will tell you something important to know about stocks, commodities, general business and the probable future sales of your own company. But do not blame cycles if they do not tell you if Kumquat Common has, or does not have, glanders or the bots!

Cordially yours,

Ned Dewey

Director

THE 1956 POSTSCRIPT
TO
CYCLES—THE SCIENCE OF PREDICTION

PART II CYCLES — CONTINUED

"I'M afraid I was a little rude last Sunday," said my friend Robert Steele as we met for our usual Sunday afternoon get-together. "I shushed you up just when you were going to show me a bushel basket full of charts. But I had looked at a lot of charts and the smell of your wife's fried chicken was irresistable!"

"Chicken is better than cycles any day," I said.

"Yes, but today's dinner won't be ready for some time. Until it is, suppose we have another go at the cycles. You were saying that if a cycle repeated *time after time* the regularity couldn't be the result of chance. You showed me a cycle about 9 months long in the ton-miles of some railroad which had repeated some 50-odd times. You had some more charts of the same sort."

A 220-Year Record of Lynx Abundance

"Well," I said, "I don't need much urging. Here is a chart of the abundance of lynx in Canada, for the past two hundred twenty years. The number of lynx go up and down in a rhythmic cycle that seems to be almost exactly 9.6 years long from peak to peak. This cycle has repeated 22½ times over the period for which figures are available. It is inconceivable that behavior as regular as this could recur as many times as this purely as a result of chance." [See chart on the two pages next following.]

"It certainly is regular," said Robert. "Its funny that it doesn't come out to an exact number of years. Why the fraction?"

Cycles Not Often Related to Year Length

"Very few cycles are related to the length of the year," I said. "We do have 2-year, 4-year and 8-year cycles, and 3-year, 6-year, 9-year and perhaps 12-year cycles. We also have 1/2-year and 1/4-year cycles, but other than this most of the cycles I know about are of odd lengths."

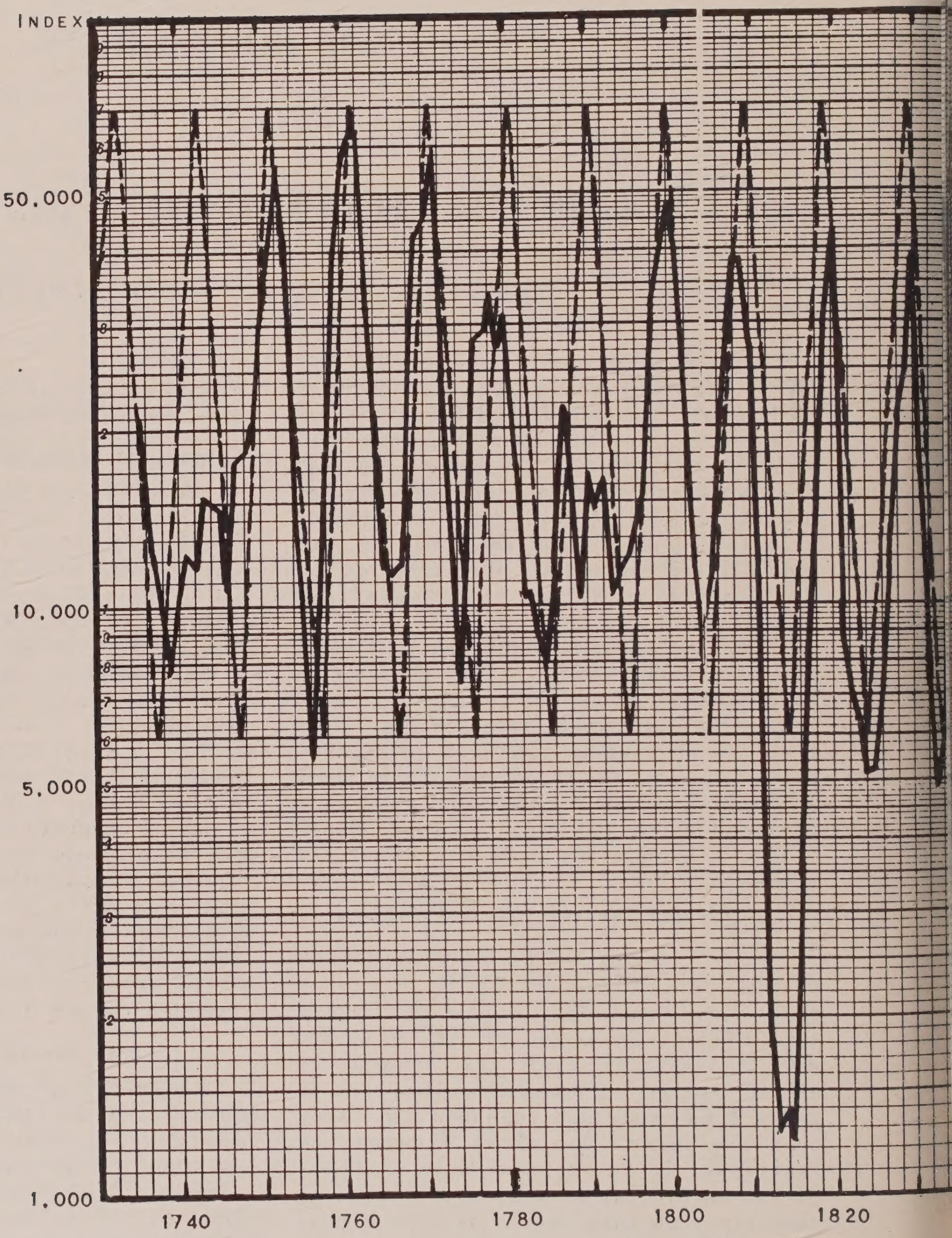
"How do they count the lynx? Do they have census takers, or what?" asked Robert facetiously.

"No," I said. "This is a record of the number of lynx skins offered year by year to the Hudson's Bay Company. As the number of trappers is relatively constant and the trappers catch all the lynx they can, and skin all the lynx they catch, the offerings are a pretty fair measure of abundance. Of course there are exceptions like 1790 when a bad smallpox epidemic struck down the Indian population and prevented the men from trapping."

What Causes the Cycles?

"I wonder what causes the cycle?" mused Robert. "Maybe its a see-saw with the food supply. When there are lots of lynx they eat so much food that the mice and rabbits and other things they eat are killed off. Then the lynx don't get enough food and don't breed. Then the rabbits get a chance and multiply. Then, with lots of food the lynx start to increase again?"

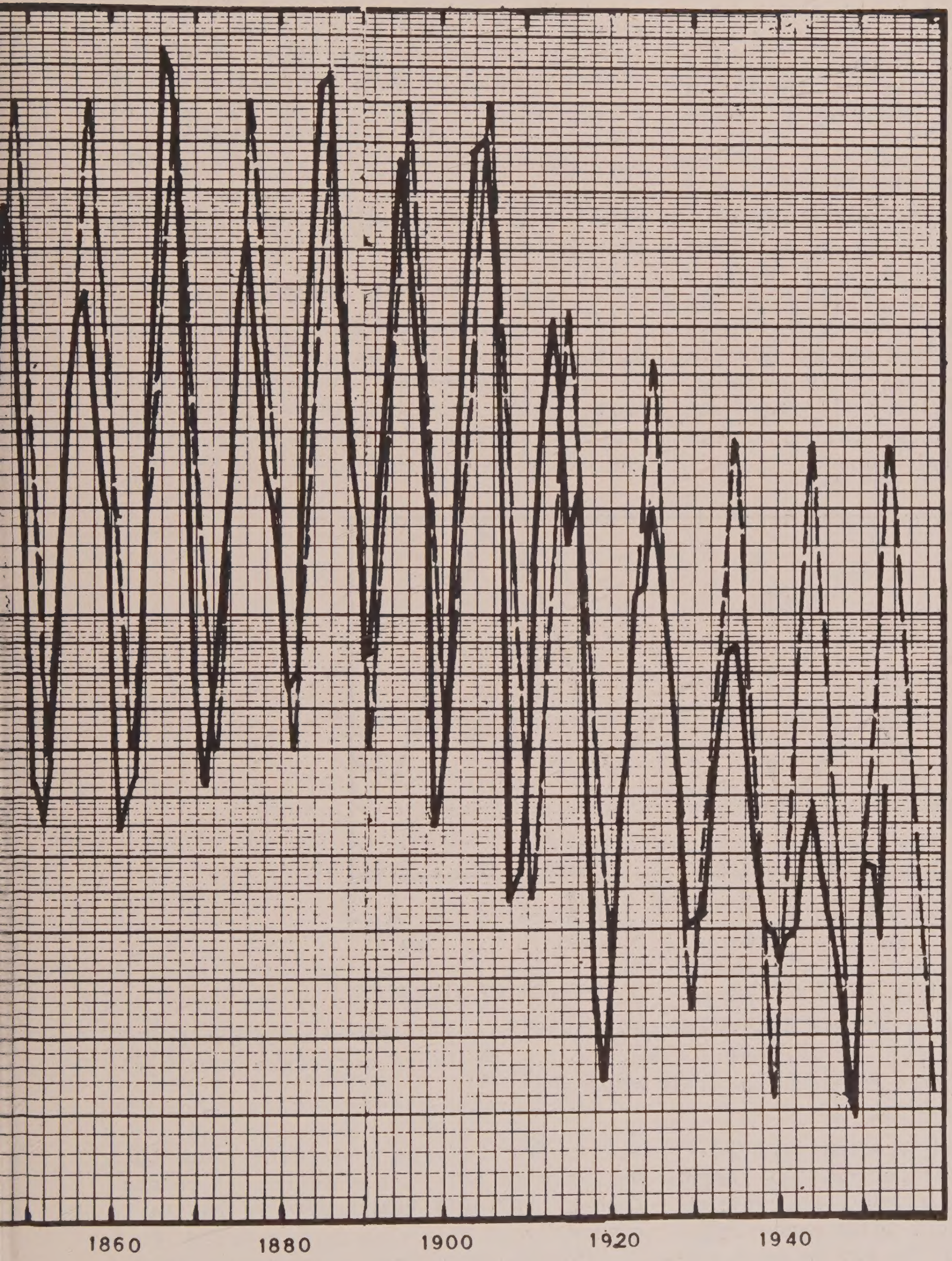
THE 9.6-YEAR CYCL



THE 9.6-YEAR CYCLE OF

The heavy line shows the relative number of lynx skins offered to
been made for a discontinuity between 1820 and 1821 due to the merger of
The broken zigzag line diagrams a perfectly regular 9.6-year cycle. (Ra
Note that the cycle has repeated 22 1/2 times. This cycle was first obs

OF LYNX ABUNDANCE,



ABUNDANCE, 1735-36—1953-54

on's Bay Company year by year for the past 219 years. Adjustment has
on's Bay Company and the North West Company.
e)
out 1884. It has repeated 7 times since discovery.

"Could be," I answered, "but I doubt it. The cycles are too regular. The average length of the cycle for the first half of the record is exactly the same as the average length for the second half of the record. You couldn't get as much regularity as that for as long as that from a 'predator-prey' alternation."

Not a Matter of Food Supply

"There are other reasons for thinking its not a predator-prey situation, too. One of them is that the cycle of the lynx is more regular than the cycle of the rabbits on which they feed. A second is that Atlantic salmon, and chinch bugs in Illinois, and human heart disease in Northeastern United States, all fluctuate in 9.6-year cycles. To me this suggests an external evironmental cause."

"Then too, Bill Hamilton at Cornell has discovered that (for mice at least) there are biological changes that occur in the animal itself as the cycle unfolds."

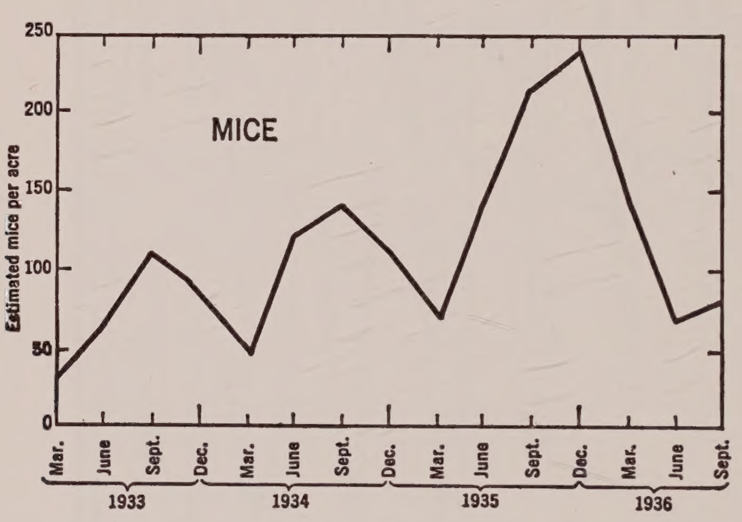
"What are they?" asked Robert.

"Well, for one thing, its easier to get a lady mouse to say 'yes' at the peak of the cycle than at the trough. Also she'll say 'yes' sooner after having children and she'll have more children at a time. So you see its something pretty fundamental."

The Mouse Cycle

"Is the mouse cycle the same length as the lynx cycle?" asked Robert.

"No," I answered. "The mouse cycle, in Northeastern United States at all events, seems to be exactly 4-years long. Here's one of Hamilton's charts:



THE 4-YEAR CYCLE IN THE ABUNDANCE OF MICE

Mouse population in a 20-acre field in central New York, 1933-1936 (after Hamilton). Chart shows seasonal pattern and one rhythmic crest. Previous outbreaks have been reported for almost every four-year interval since 1863.

"This chart is based on actual quarterly counts over a four year period, but there are records of mouse plagues in central New York State every four years since 1863, I think it is. So, all the way up to date we have 18 repetitions of the cycle. Moreover this work of Hamilton's was done in 1936 and the cycle has been coming true ever since, as best I know. The year 1955 was year of peak. This gives us a second reason for feeling confident that this behavior is not just a series of coincidences. It isn't reasonable to lay it to chance."

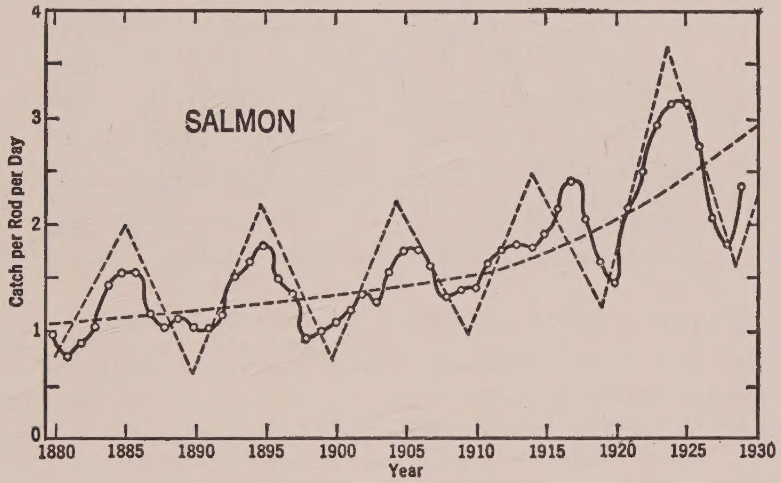
"How do they take a mouse census? I should think it would be difficult," said Robert.

"I forget the details," I answered. "I know they count droppings on the runs, for one thing. They also trap them and count them and let them go again. I think they earmark some of them before they let them go, and they see how the proportion of earmarked ones varies in later catches. Anyhow, it's all very scientific and the estimates of total population are quite close."

"And you say that fish have the same cycle of abundance?" said Robert, incredulously.

"Atlantic salmon do." I answered. "Other fish populations go up and down in cycles of other lengths. It depends on the kind of fish and perhaps upon where they are located. Pacific salmon have a cycle that's different from Atlantic salmon. But over in England, at Wye, the catch of salmon (1906-1943) shows this same 9.6-year cycle, too, just as in Canada

"Here is a chart showing the abundance of Atlantic salmon on a river in Canada from 1880 through 1929, together with a diagram of a perfectly regular 9 2/3-year cycle:



THE 9 2/3-YEAR CYCLE IN THE ABUNDANCE OF ATLANTIC SALMON

Catch per rod per day on the Restigouche River, Canada, 1880-1929, smoothed by a three-year moving average (after Phelps and Belding), together with a regular 9 2/3-year cycle.

"Five cycles by themselves aren't many but in this case the length is supported by the 22 repetitions of a cycle of the same length in lynx."

"How do you account for the fact that lynx and fish and insects have a 9.6-year cycle and mice have a four-year one?" asked Robert.

The Nature of the Critter

"I don't!" I answered. "I've given up trying to figure out why anything has the cycle length it does. I guess its just the nature of the critter to respond to one or more cyclic forces in its environment."

"What do you mean 'one or more'?"

"Well, most things act as if they responded to several environmental forces. In lynx for example, if you smooth out the 9.6-year cycle you find a 35-year cycle there also."

Environmental Force

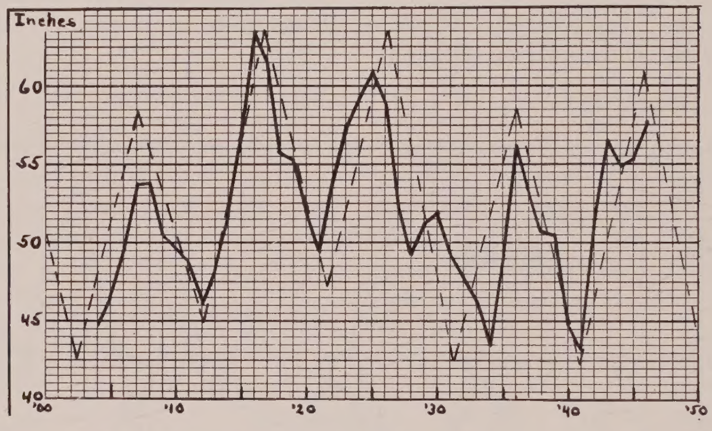
"I don't like this 'environmental force' idea," said Robert. "It sounds like astrology. Why can't you be content to say that its the nature of lynx population to fluctuate in a 9.6-year cycle and the nature of mouse populations to fluctuate in a 4-year cycle, and let it go at that?"

"Because," I answered, "Atlantic salmon behave the same way.

"There is no possible direct interrelationship between lynx and salmon. If they both have the same cycle it must be either as a result of chance or as a result of a common cause—a common environmental force. And considering the number of different things that have this 9.6-year cycle, I just can't bring myself to believe it's chance."

"Could this 'environmental force' be weather?" asked Robert.

"In some instances, yes," I said. "Huntsman, for example, believes that the 9.6-year cycle in salmon is due to variations in rainfall. And I did find what seems to be a 9.6-year cycle in rainfall in India from about 1903 on. Here is a chart of it:



THE 9 2/3-YEAR CYCLE IN INDIAN RAINFALL

Annual rainfall, Sone river watershed, United Provinces, India 1903—1947, smoothed by a centered two-year moving average.

Broken ziggaz shows a regular 9 2/3-year cycle.

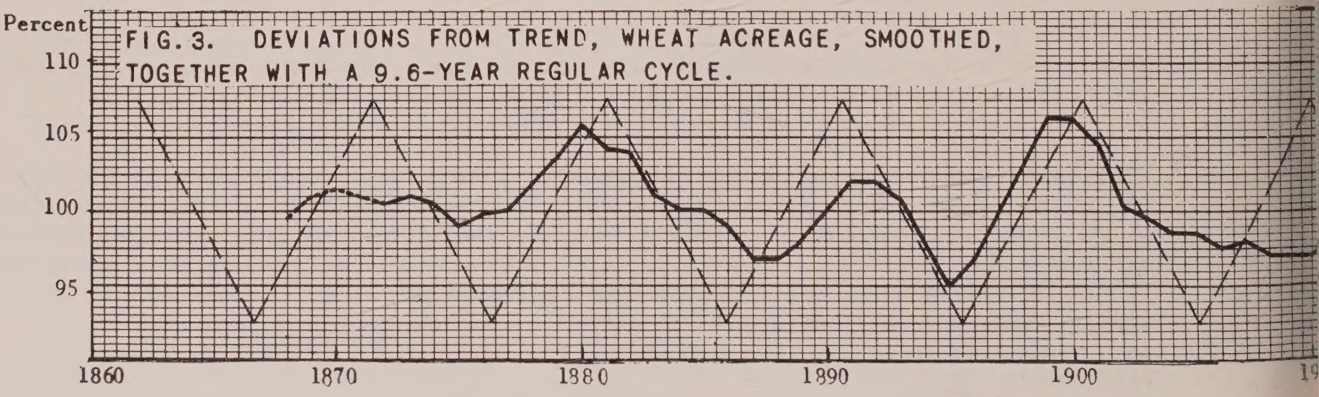


FIG. 3. DEVIATIONS FROM TREND, WHEAT ACREAGE, SMOOTHED, TOGETHER WITH A 9.6-YEAR REGULAR CYCLE.

ACREAGE PLANTED

The solid line shows percentages by which the acreage planted to w
ing average trend.
The heavy broken line from 1947 to 1952 shows how this cycle has conti
The broken zigzag line diagrams a perfectly regular 9.6-year cycle. B

"Where else have you found this 9.6-year cycle?" asked Robert.

"Off hand I can't think of any place where *I* have found it except in the acreage of wheat harvested, but other people have found it in all sorts of wild life figures.

"Here is a chart showing it in wheat acreage." (see below)

"I should think wheat acreage would have gone up over the years," said Robert.

Chart Adjusted for Trend

"It has," I answered. "This chart has been adjusted for trend, just like the ton-mile figures of the Canadian Pacific Railway I showed you last Sunday. These charts show you percentages above and below trend. I can show you a chart of the actual figures before removal of trend if you want to see them. For wheat acreage they were last printed in *Cycles* for February 1955.

"Don't bother," said Robert. "I can see them some other time. But what always does bother me with any manipulated figures is whether or not the manipulations put the cycle in."

"The cycles are right there in the original figures," I said, "only when they are mixed up with an upward trend it's harder to measure them. That's why we usually take trend out before trying to study the cycle. But you can always go back to the original figures if there is any doubt in your mind."

"No, I'll take your word for it," said Robert, but I thought a little reluctantly.

"I suppose that heavy part of the curve off to the right shows how the thing has behaved since you discovered it?" Robert continued.

"Yes," I said.

"It certainly is regular, except that the peak in the 70's didn't amount to much and the wave due to peak about 1910 was late."

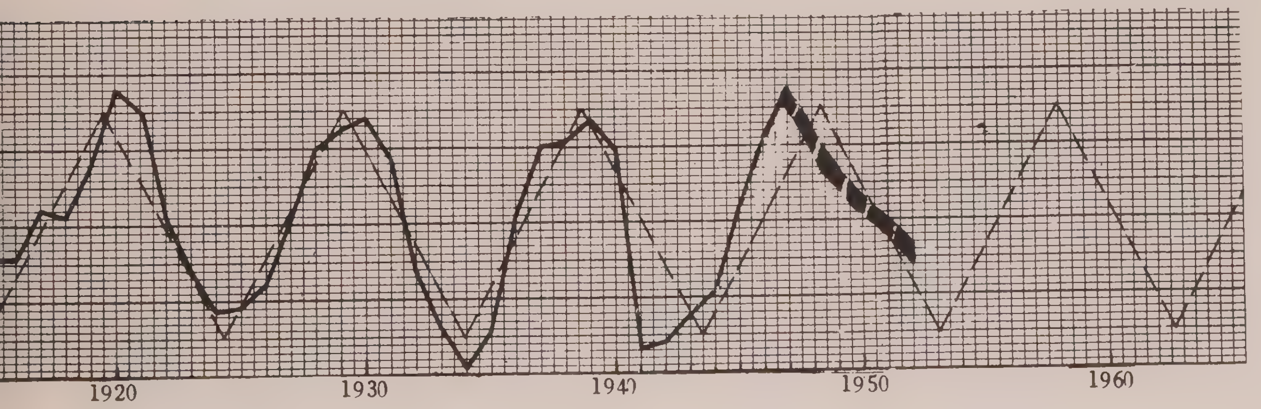
"Yes," I said.

"Do you find this cycle in any other economic figures except wheat acreages?" asked Robert.

"No, I haven't yet," I answered. "And I'm wondering if we should call *these* economic figures. I used to think they were. But then, when I never could find a 9.6-year cycle in any other economic figures I wasn't so sure.

Due to Something Other Than Man

"You see, the figures are for wheat *harvested*. I figured maybe the ups and downs were due to the weather. So I got



AT, 1868—1952

othed by a five-year moving average, is above or below a 9-year mov-

ce first discovered.
le.

hold of some figures of acres *planted.* They don't show the 9.6-year cycle anywhere nearly so plainly, so this cycle does seem to be at least partly a matter of weather or insects or something other than man."

"But if the cycle is present at all in acres planted doesn't that prove that, at least to that extent, man responds to it?" persisted Robert.

"Yes." I answered, "but he may be responding to soil or weather conditions, or what he thinks weather conditions are going to be, instead of to economic factors."

"I always thought," said Robert, "that when the price was high farmers planted lots of wheat, and vice-versa."

"So did I," I answered. "That's what they taught us in school. But I can't find a trace of a 9.6-year cycle in the *prices* of wheat. Its all in the acreage. There may be economic factors in the acreage planted to wheat but I've come to believe that at least the 9.6-year cycle in these figures is probably either a weather cycle or a cycle reflecting man's response to weather."

"Has anybody ever found a 9.6-year cycle in Canadian weather?" asked Robert.

"Not that I know of?" I answered.

"Then weather as a cause in pure guesswork?" asked Robert.

"Yes," I answered.

"But of course even if it is weather it won't help us much," I continued. "We still have the question, what makes weather behave that way?"

"Maybe its just the nature of weather to act that way," said Robert.

"Could be," I answered "but that's not a very satisfactory reason.

"Anyhow," I continued, "even if it is the weather in this one case, the weather couldn't at one and the same time be the cause of all the different cycles."

"I thought you said a little while ago," said Robert "that things could have different cycles in them at one and the same time?"

Cycles Blend

"I did," I answered "but when things have cycles of nearly the same length the cycles blend over long periods of time to look like one cycle with a length half way between.

"For example, if weather had a 9.6-year cycle and a 9.2-year cycle at the same time and the same place they would blend into a 9.4-year cycle.

"We couldn't have a 9.4-year cycle causing a 9.6-year cycle in lynx and rabbits and salmon and, at the same time causing a 9.4-year cycle in something else."

"Does anything have a 9.2-year cycle? asked Robert.

"Oh, gracious yes!" I answered. "Loads of things. Don't get me started on that or we'll never get through."

"I don't know how we got onto this 9.6-year cycle." I added. "I showed you that 9.6-year cycle in lynx merely as an example of a cycle which has repeated so many times and so regularly that it cannot possibly be the result of chance. I was going to show you lots of charts showing cycles of many lengths, all illustrating this same point."

"Oh, thats all right for a lecture or a book" said Robert. "But don't you think for a conversation its more interesting to ramble all over the lot, letting one thing lead to another? I do.

"Now as for me," he continued "I've got my curiosity aroused about this 9.6 thing. Where else has it been found and what really causes it? From looking at that lynx chart I'll grant that it can't come about by chance."

Not Chance

"No," I said, "I'm sure it didn't come about by chance.

"But to answer your questions." I continued. "You've asked two in one breath! Let's divide that up and answer them one by one."

"All right," said Robert.

"Where else has it been found?" I said, repeating Robert's first question. "Well let's see. I told you about Atlantic salmon. That's the only fish I know about that has a cycle of this length. There may of course be others. I don't know too much about fish cycles.

"As for insects, I told you about chinch bugs in Illinois." I continued. "Another example may be tent caterpillars in New

Jersey."

"Why do you say 'may be'?" said Robert.

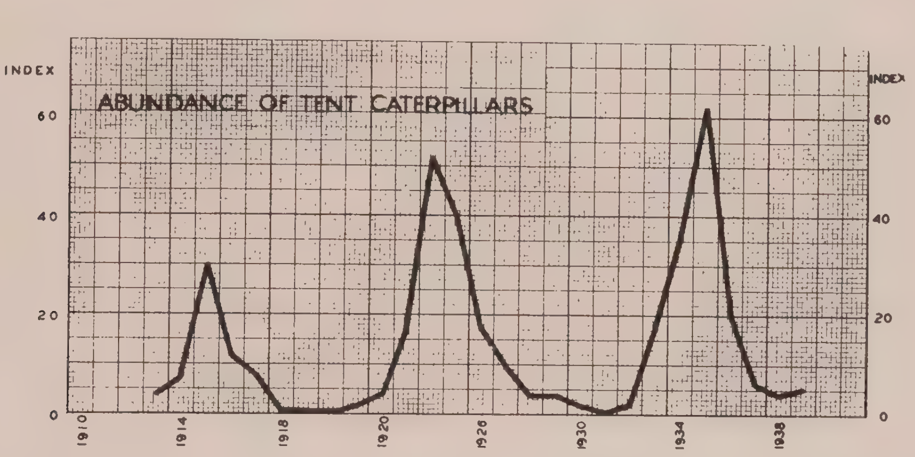
"Because the record is so short that no one can say for sure just what the length is."

"What is the record?" asked Robert.

"Well," I answered, "a fellow named Headlee—I think he was chief entomologist for the state of New Jersey—started in 1913 to keep a record of the letters he got complaining about tent caterpillars—of course you know what tent caterpillars are?"

"Oh yes," said Robert. "They are the worms that spin those webs in trees in the spring, and then eat all the leaves off!"

"Yes," I said. "Well, Headlee kept up his record until 1939 by which time there had been three complete cycles. Here is a chart of them:



ABUNDANCE OF TENT CATERPILLARS

An index of the incidence of tent caterpillars in New Jersey, 1913-1939, prepared by Thomas J. Headlee, New Jersey State Entomologist. A cycle about 10 years long is indicated, but the record is too short to enable us to determine the length exactly.

"You can see that each wave is about 9 or 10 or 11 years long."

"If you had more figures you could get the length more exactly?"

"Yes," I said.

"Can't you get them?" said Robert.

"I've written, but so far I haven't been able to," I said. "I don't think Headlee is around any more."

"Then you don't really know that the tent caterpillars have a 9.6-year cycle, do you."

"We know that they come and go in cycles but we don't know for sure its a 9.6-year cycle." I said.

"Any other insects?" asked Robert.

"No," I said "None that I can think of."

"How about birds?" asked Robert.

"You *are* catechizing me, aren't you?" I said.

"Yes," said Robert, "I want to finish up about this 9.6-year cycle before dinner, and the girls will be calling us any moment now. I've been smelling that steak broiling for quite a while."

"The only birds I know about which have this 9.6-year cycle—often called a 10-year cycle by biologists—is one kind of hawk and one kind of owl, both found in Canada, and ruffed grouse and partridge in Canada, Michigan, and Wisconsin.

"One fish. Two insects. Four birds," said Robert. "Snakes?"

"No."

"Mammals outside of lynx?"

"Quite a lot of mammals." I said. "All

in Canada, as far as I know. Wolves for one. Then there are muskrats, martins, fischers, silver foxes, cross foxes, red foxes and snowshoe rabbits. Thats all I can think of at the moment."

"That makes nine including lynx," said Robert. It's certainly something very fundamental, but what *causes* it? Could it be sunspots? Or something like that."

"It wouldn't be the manifest sunspot cycle as we know it," I answered.

"What do you mean, 'manifest cycle,'" said Robert.

"That's a term used by Dr. Wing." I said, "to mean the cycle as we actually see it, in contrast to hidden cycles that may also be there, or cycles which may combine to produce the cycles that we see.

"In years gone by," I continued, "before people made exact measurements it used to be pretty generally assumed that this 9.6-year cycle—at that time called a 10-year cycle—might be a result of sunspot influence, especially as the two cycles more or less coincided from about 1850 to about 1890, when biologists were first taking official notice of their existence. But MacLulich spiked this idea once and for all in a paper he wrote about 20 years ago. Here is a chart [see opposite page] in which he plotted the sunspot numbers by means of a dotted line and rabbit abundance, from about 1780 up to the date of his paper, by means of a solid line. You can see that although the sunspots coincide with the rabbit cycle occasionally they quickly get out of step. The little diagram at the bottom shows this even more clearly. Alternately rabbit cycles, lynx cycles, and sunspot cycles are all marked with black bars. It's perfectly clear that there is no possible interrelationship between the manifest sunspot cycle and rabbit and lynx abundance.

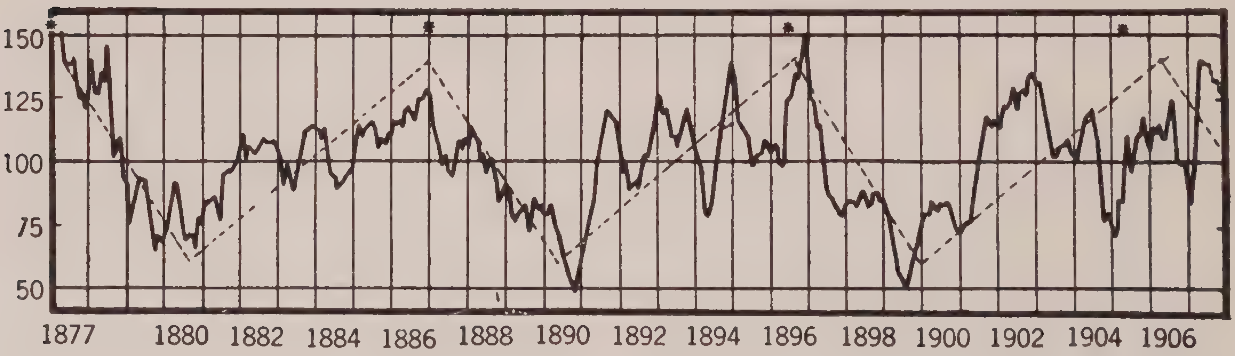
"Of course there might be a minor sunspot cycle 9.6 years long in addition to the manifest one. In fact, Dr. Wing has found traces of such a cycle, but of course even if it stands up that doesn't prove a cause and effect relationship."

"Rabbit cycles don't seem to be as regular as the lynx cycles," said Robert.

"No," I answered, "thats one reason I don't believe the lynx cycle is caused by the rabbit cycle. I think both are caused by some external enviromental force.

"But, of course, even if the lynx cycle was caused by the rabbit cycle it doesn't get us anywhere. The question still remains, what caused the rabbit cycle?

"Dr. Green thought the rabbit cycle was



THE 9 2/3-YEAR CYCLE OF OZONE AT LONDON (KEW) AND PARIS

In averaging the two records each of the 12 calendar months is treated as a separate unit and receives the same weight at both places. Seasonal trends are eliminated by using percentages of monthly averages. Secular trends are eliminated by using percentages of a 115-month moving average. Minor variations are eliminated by means of 7-month moving averages. The 4 asterisks indicate maxima of lynx in Canada. (From Huntington--*Mainsprings of Civilization.*)

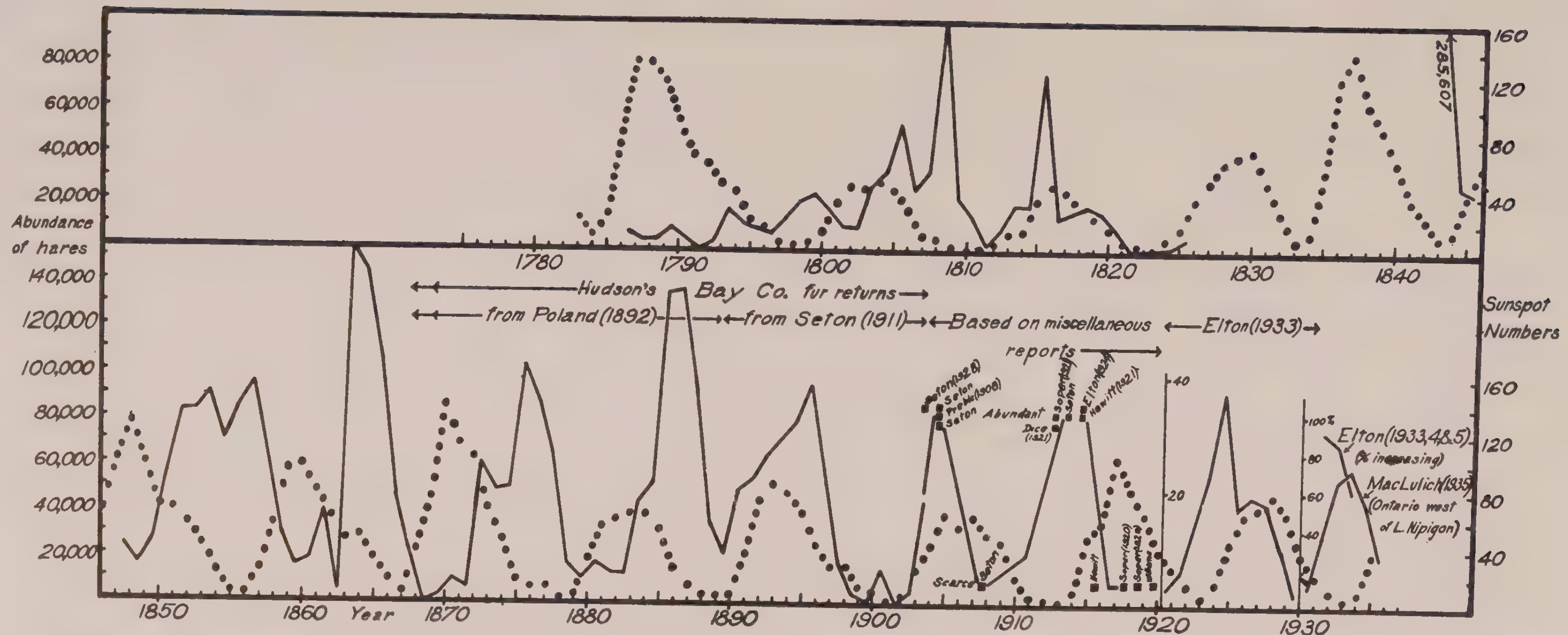


Figure 1. Abundance of varying hare (*Lepus americanus*) compared with sunspot numbers.

The abundance of hares in winter (solid line) plotted over end of year in which the winter began, i.e. after the season of its biological production. Sunspot numbers (dotted line) plotted over middle of each year (the marks on base line).

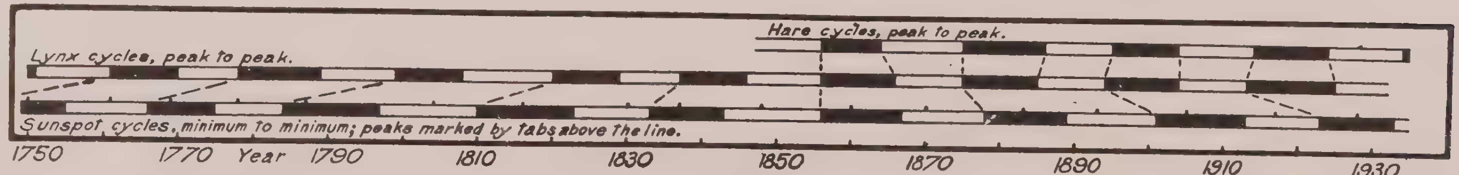


Figure 3. Visual comparison of cycles of abundance of hares, lynxes and sunspots. Alternate cycles marked in black.

(AFTER MACLULICH)

caused by periodic outbreaks of tularemia."

"But" said Robert, "as you said about the rabbits, that still doesn't get us anywhere. What causes tularemia to be cyclic? —to have a 9.6-year cycle?"

"Well," I said, "Green thought it was a cycle in the abundance of the ticks which carry the tularemia. But of course, even assuming all of this to be so—which I doubt—we're still left with the problem, what causes the 9.6-year cycle in ticks."

"Ticks are insects" said Robert."That gives us a third insect."

"Yes," I said, "I forgot about Green's ticks. But to get back to cause; Professor Huntington of Yale had the idea that a common factor which might cause all these cycles is ozone. There is definitely a cycle about 9.6 years long in ozone as you can see from this chart:"[See chart on bottom of page 42.]

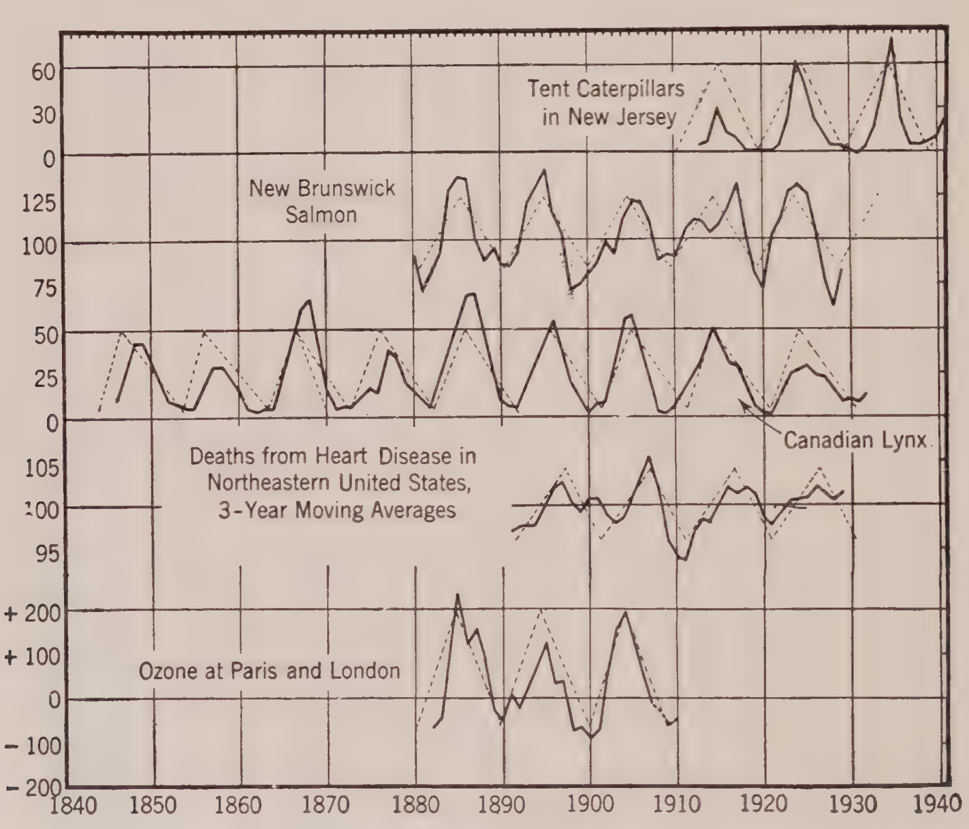
"Dinner's ready!" said my wife.

"All right," I answered, "just one more chart before we come."

, "Here [see below] is one of Professor Huntington's chart where he shows tent caterpillars, Atlantic salmon, Canadian lynx, deaths from human heart disease and ozone, all drawn one under the other. If I had the time I could make another chart like this that would show these cycles and all of the various other things which also show the 9 2/3-year cycle. Also, I could run the lynx cycle back another 100 years. I think it would be pretty convincing."

"Yes," said Robert, "It would. But let's not try to do it now. Let's go eat."

E.R.D.



THE 9 2/3-YEAR CYCLE IN ANIMALS, MAN, AND OZONE

The ozone curve shows the amount by which the ozone of any given year differs from that of the fifth preceeding year, after secular trends have been eliminated. (From Huntington —*Mainsprings of Civilization.*)

Letters

LONG TERM CYCLES IN HUMAN EMOTION

EVERYBODY knows that we human beings have emotional ups and downs. Some days we are riding the crest of the wave. Other days we are down in the dumps.

Some years ago a scientific study of these emotional ups and downs was made by Professor Rex Hersey of the University of Pennsylvania. We published a report of his findings as Foundation Reprint No. 3. This reprint was so popular that we reprinted it as a supplement to *Cycles* for November 1954. (Copies still available at $1.00 each.)

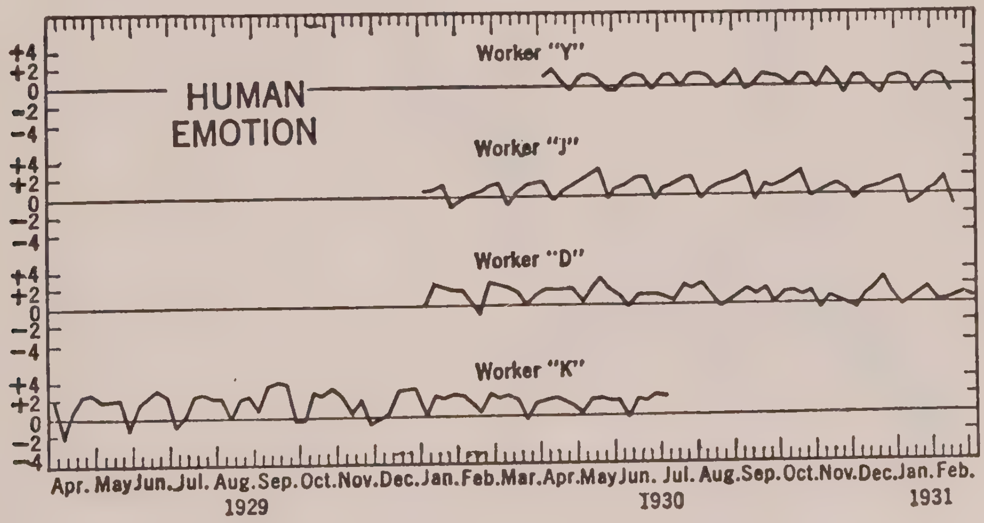
Briefly, Professor Hersey discovered:

(1) The ups and downs of all the men he studied were rhythmic—that is, they tended to come at more or less regular time intervals.

(2) Depending on the man, the wave length of these cycles ranged from 2½ to 9½ weeks.

(3) For any one man the wave length was always about the same.

Here is one of Professor Hersey's charts:

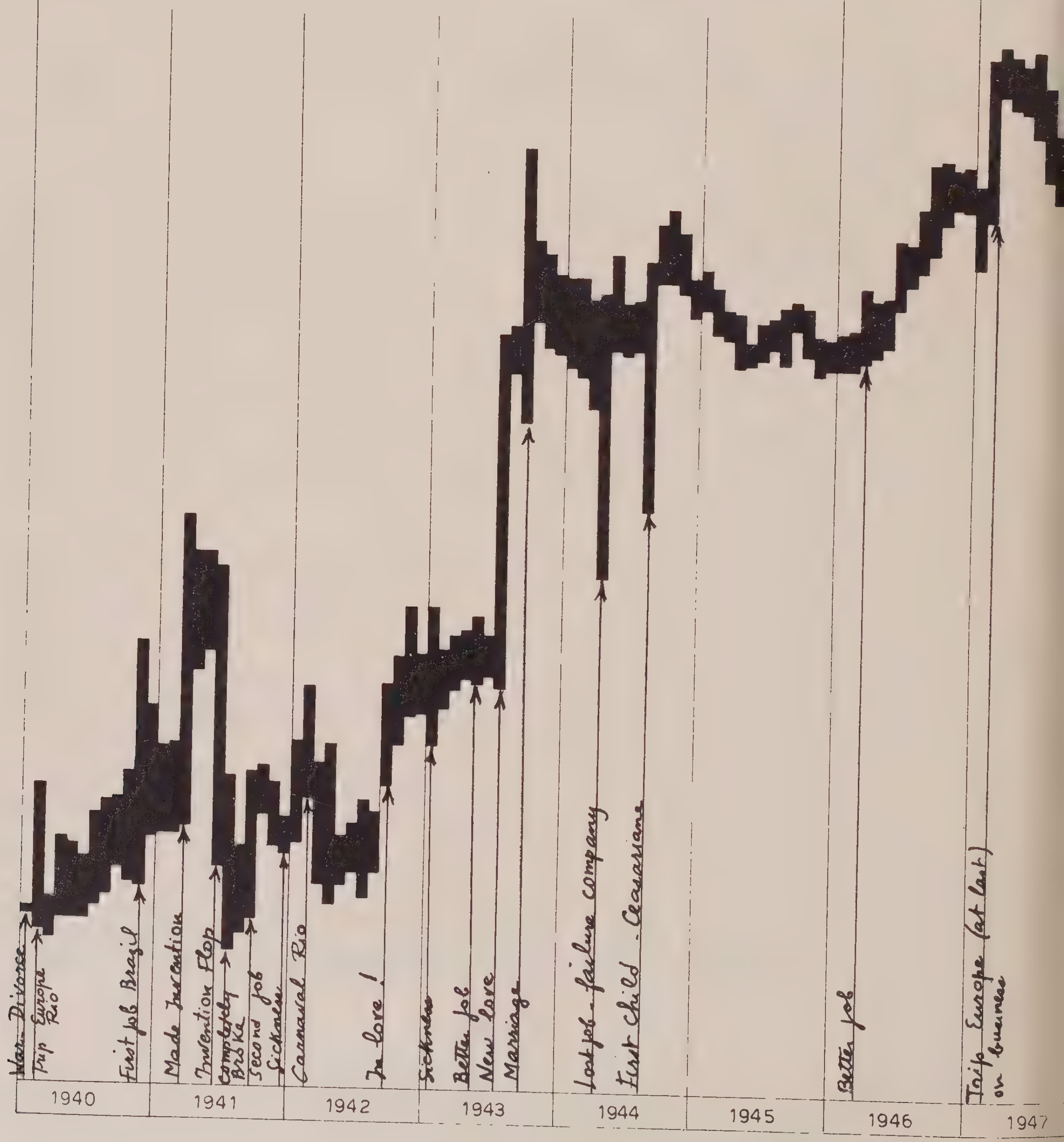


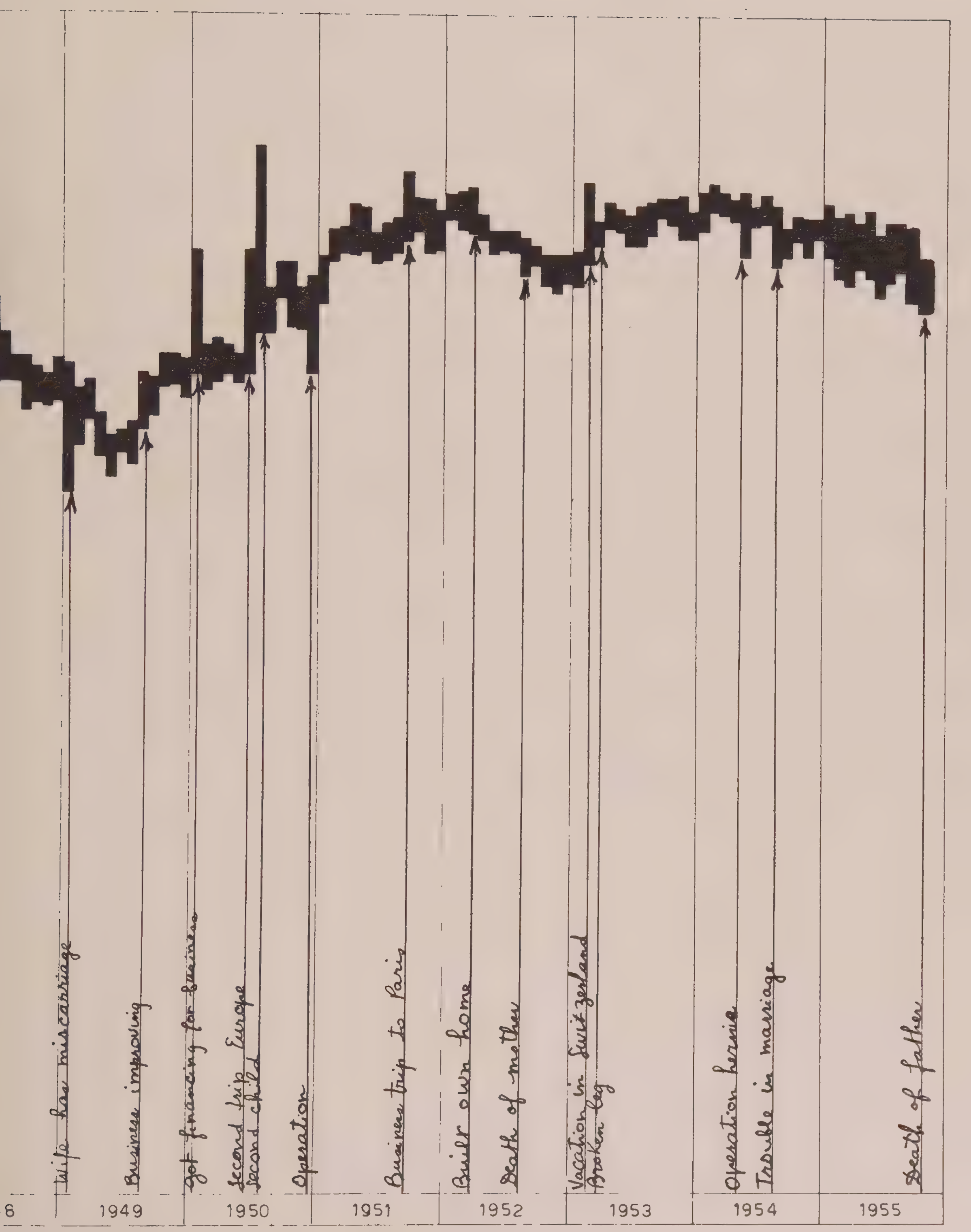
VARIATION IN HUMAN EMOTION

"Ups" and "downs" in the emotions of four male employees of the Pennsylvania Railroad Company (after Hersey). Reprinted from *Worker's Emotions in Shop and Home*, by Rexford B. Hersey. Copyright, 1932, by the University of Pennsylvania Press.

CHART SHOWING THE EMOTIONAL UPS AND DOWN OF M. GILBERT DESCHATRE
By Months, January 1940 Through November 1955.

This record provides valuable material for cycle study.




Wife has miscarriage
Business improving
Got financing for business
Second trip Europe
Second child
Operation
Business trip to Paris
Built own home
Death of mother
Vacation in Switzerland
Broken leg
Operation hernia
Trouble in marriage
Death of father
8
1949
1950
1951
1952
1953
1954
1955

Are there longer cycles in the emotional ups and downs of individuals? Professor Hersey's records are not available over a long enough period of time to tell us.

You can therefore imagine my pleasure when, recently, I got a letter from a man who has recorded his moods *every day for the past 15 years*. This record gives us figures which can be studied for longer cycles. The man is M. Gilbert Deschatre of Rio de Janeiro. The correspondence with M. Deschatre follows:

M. Deschatre's First Letter

Dear Mr. Dewey:

I have long been an enthusiast of graphic representation and it is only recently that I have read your excellent book "Cycles" and entered as a member of your foundation. All my congratulacions for your work.

I am enclosing herewith two rather peculiar charts. One represents my daily mood from January through June 1955; the other the monthly high and low of my mood for the last 15 years.

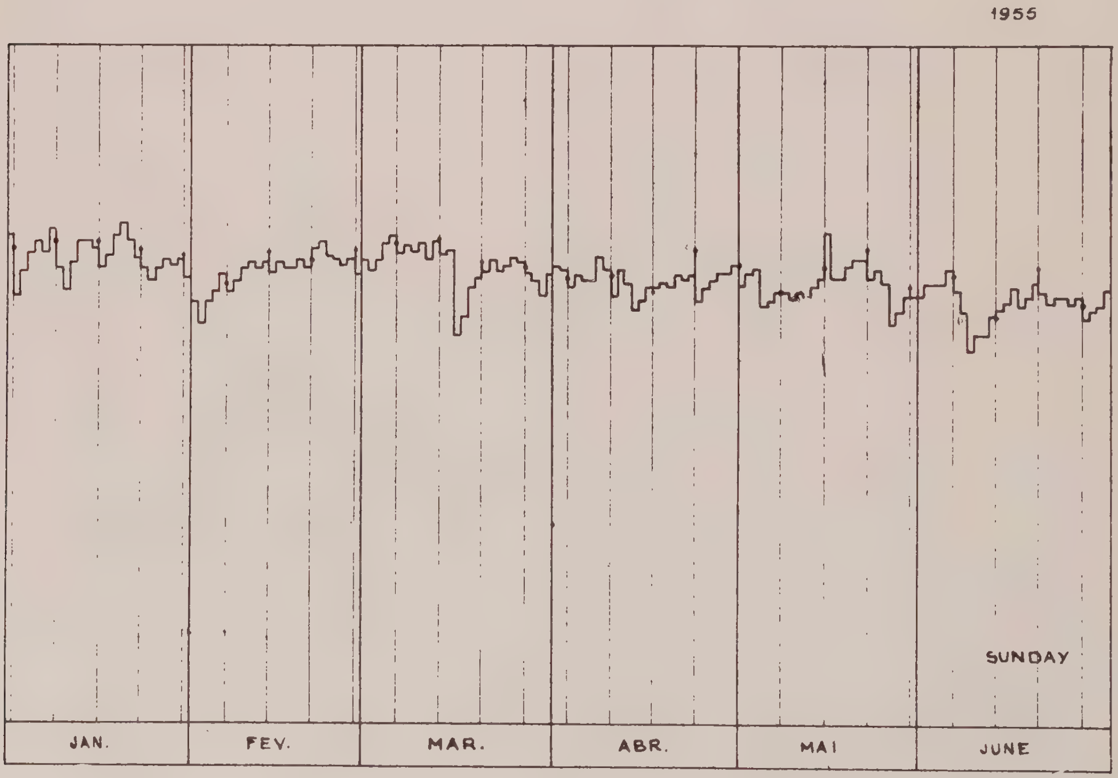
Every day, with great perseverance I have noted the degree of my optimism or pessimism. In those 15 years I went through war, marriage, bussness failure, business success, sickness, etc. Of course all this shows on the day chart, but what impresses me is the rhythm that one can observe on the 15 years chart: more or less a cycle of 3½ years.

Of course it might be a coincidence and the time element is rather short, but I have thought that this study might interest you since on page 61 of your book you mention rhythm in human emotion.

Excuse this letter and believe me very sincerely.

Yours,
Gilbert Deschatre

509 Av. Pres. Vargas.
Rio de Janeiro



My Reply

Dear M. Deschatre:

I have your letter of September 16. I find it of extraordinary interest.

Did you live in Rio over the entire span of 15 years? Have you any idea what caused the sudden change of level in 1943? Marriage? Change of location? You doubtless have the numerical values day by day from January 1940. Have you ever averaged these values by months? The average might give a truer measure than a recording of highs and lows.

Do tell me more about how you determined the degree of your optimism and pessimism. I suppose you assigned plus and minus numerical values of some sort.

I would like very much to know as much about this amazing record as you care to tell me and to publish an account of it in some future issue of *Cycles*.

Cordially yours,

M. Deschatre's Second Letter

Dear Mr. Dewey:

I received your letter of Oct. 21st. I was very pleased to read you. Until now everybody was laughing at my daily mood charts and it is a comfort to find somebody appreciating them.

When I started to plot my emotions I did so in an effort to improve my happiness; seeing the back record made me feel more realistic about the present. Naturally I expected wide oscillations but it is only after reading your book that I realized the regularity of the waves.

With a great patience, *every night* for the last 15 years I have plotted the chart. In the beginning I figured some mathematical rules to assign a value to my mood, but after a while I found it too complicated, too many factors being involved and now I am applying only judgment, balancing every good and bad things which happened in the day. The curious fact is that sometimes only good things happen and my mood is not so good (and inversely).

Of course, the appreciation by judgment may not give a very accurate basic value: it is a value by comparison with the previous day, or the previous week. In the first years, I was probably more nervous which account for the wider oscillations; now being older (53 years) my reactions are more calm and this is reflected in a smoother chart. I may make mistakes in the appreciation of the daily value, but the interesting fact is that the wide waves cannot be due to an error of judgment.

In the first years the ascendant general curve may be unconsciously caused by an improvement in my financial life, but for the last five years although my business has been quite a success (prefabricated houses), my mood has not kept on improving.

I am enclosing another chart of the monthly highs and lows and I have written on it the main events of my life. If you wish more information, I will send them to you with pleasure.

As for the charts reporting the daily mood, I have all of them since 1940. I have not calculated any monthly averages and it will be quite a job to do it.

I look forward to hearing from you again in the near future.

Cordially yours,
Gilbert Deschatre

509 Av. Pres. Vargas
Rio de Janeiro

P. S. If any of our members wish to make a cycle analysis of M. Deschatre's figures, please let me know and I will write to M. Deschatre for his daily data.

THE MODIFIED GEISINGER INDICATOR

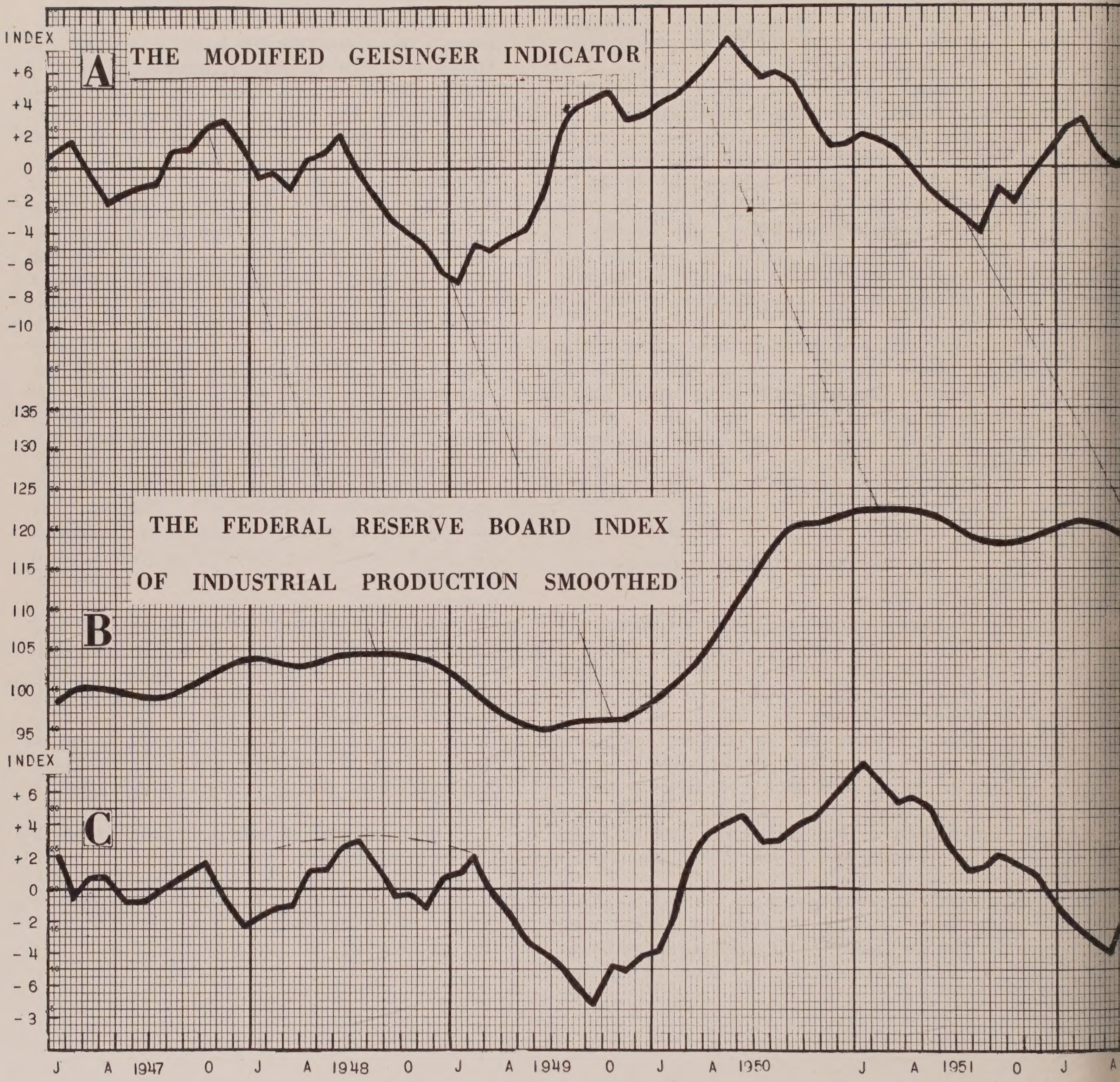
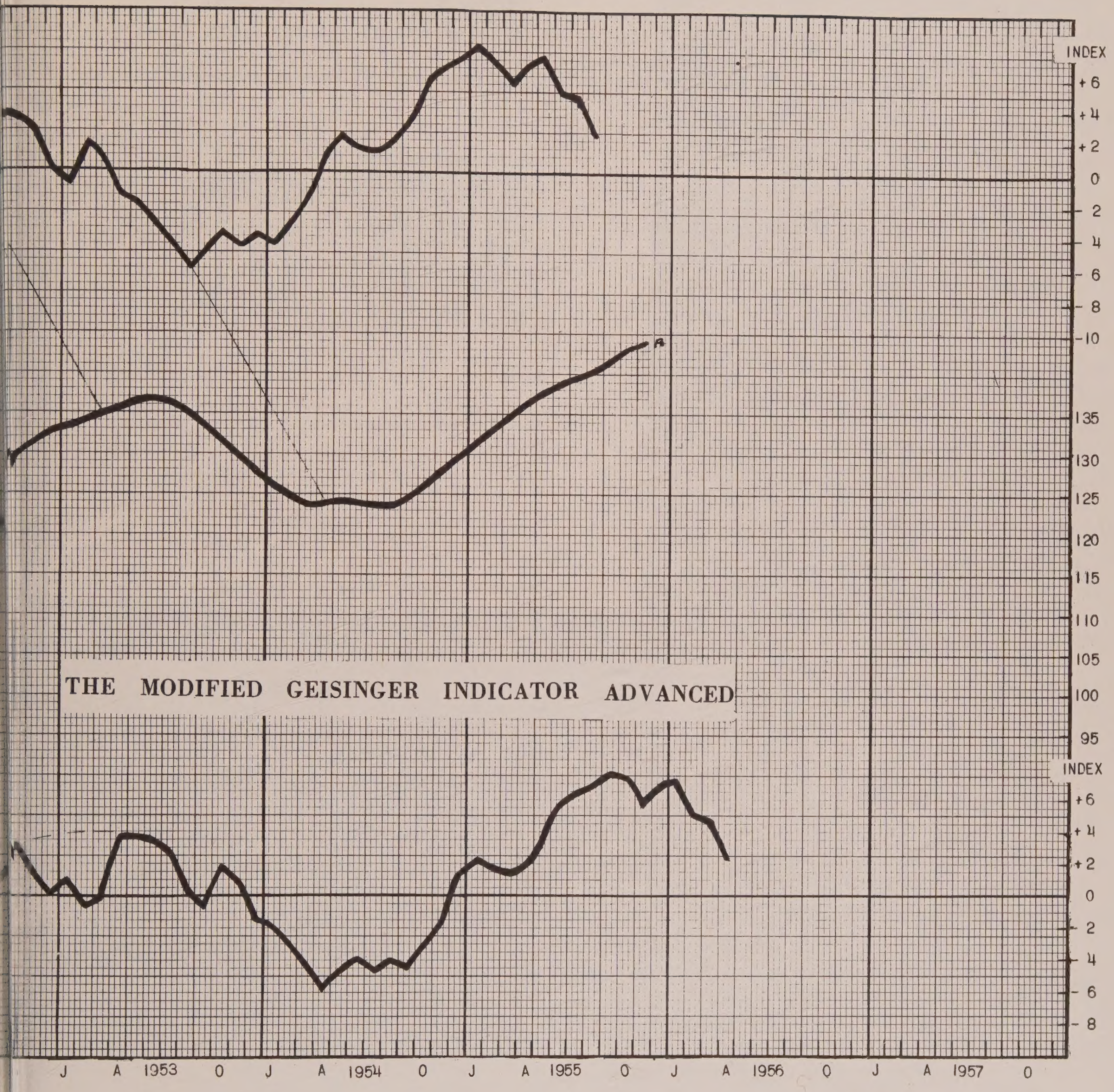


Fig. 1 Curve A. The Modified Geisinger Industrial Production Indicator Curve. This curve is derived from certain figures which are published monthly in the *Survey of Current Business*. It tends to turn about 8 months before the Federal Reserve Board Index of Industrial Production.

Curve B. The Federal Reserve Board Index of Industrial Production adjusted for seasonal variation and smoothed by a 3-month moving average. The value for the latest available month is shown by a dot.

Curve C. This curve is the Modified Geisinger Industrial Production Indicator Curve advanced by 8 months. This process projects part of the curve into the future. If the relationships of the past continue, the projection gives some hint of what may happen to the Federal Reserve Board Index of Industrial Production (Curve B).

OF INDUSTRIAL PRODUCTION



THE FORECAST

The Modified Geisinger Indicator dropped from 4.7 for July to 2.3 for August (April 1946 when projected).

This fact continues to suggest to me that the Federal Reserve Index of Industrial Production may level off and decline during 1956.

E.R.D.

THE JOURNAL OF CYCLE RESEARCH

Some of our members may not know that we also publish a quarterly Journal. It is called the *Journal of Cycle Research,* and sells for $1.00 a copy, $4.00 a year. It is somewhat more technical and more formal than *Cycles.*

Contents of those issues that have been published, through 1955, are given below:

VOLUME 1, No. 1 (Out of Print)

An Economic Cycle: The 17 2/3-Year Rhythm in Liabilities of Commercial and Industrial Failures in the U. S., 1857-1950, by Edward R. Dewey

VOLUME 1, No. 2

Guest Editorial, The Study of Cycles, by Harlan T. Stetson

War Cycle and the 6-Year Cycle in Cotton Prices 1731-1949, by Edward R. Dewey

Causation of the Nine-or-Ten-Year Salmon Cycle, by A. G. Huntsman

A New Form of Periodogram, by Edward R. Dewey

VOLUME 1, No. 3

Editorial: Cycle Conferences Needed

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The 17 3/4-Year Cycle in Pig Iron Prices 1784-1951, by Edward R. Dewey

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Guest Editoral: Cycles in Animal Populations, by J. R. Dymond

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The 14 2/3-Year Cycle in the Number of Strikes in the U. S., by Edward R. Dewey

Standard Month Numbers

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Brief Articles: Cycles in Flight Years of Snowy Owl, Evening Grosbeak, and Pine Grosbeak

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